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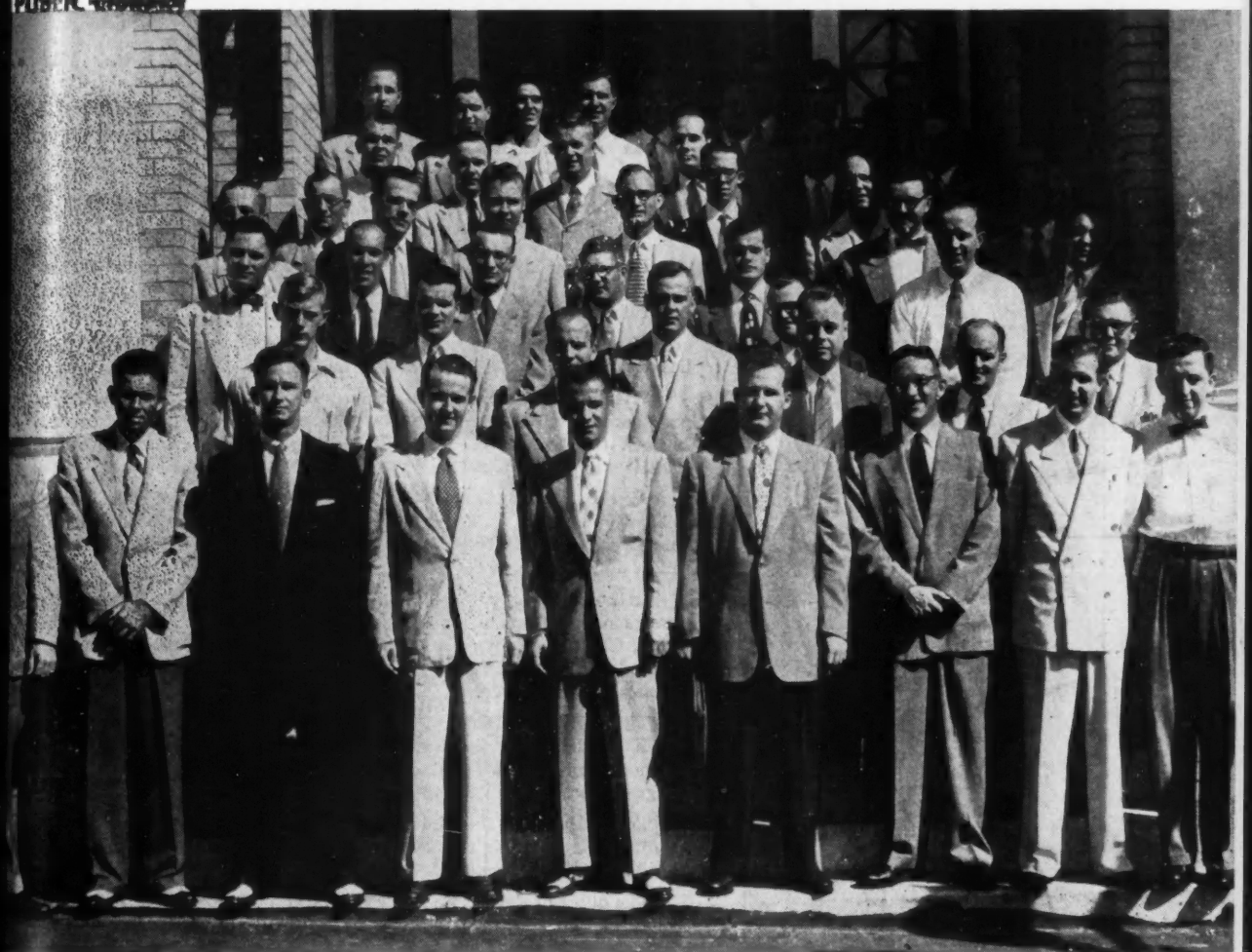
THESE MEN PROMOTE FLORIDA CITRUS



f the 1952-1953 staff of the Florida Citrus Commission merchandising staff gathered recently in Lakeland, Florida, for their annual Fa ning meeting. In a week's time, the crew heard talks by prominent persons in the industry, viewed groves and packing houses, an er points of interest in the citrus belt. The staff which includes many Floridians are shown on the steps of the Commission buildin

This Month

Some Results in Hedging Trees
Citrus Insect Control for November 1952
The Other Side of The Wide Tire Rim Dispute
65th Annual Meeting Florida State Horticultural Society
Rail Refrigeration Test With Florida Citrus — November 1950
Possible Market Outlets for Florida Citrus Juices Through Dispensers

ol. 33, No. 11 Bartow, Florida November, 1952

XUM

Unimproved pine land

Improved grass pasture

Improved clover pasture

What Your University of Florida Agricultural Experiment Stations Mean to You

How Playing Nursemaid to STRANGE GRASSES Paid Off in Better Pastures!

Florida has always had plenty of grass . . . but not the kind that a steer could convert into pounds of tender beef or a cow could turn into rich, nutritious milk.

Grass, really, was a tough problem in Florida and not until it was licked could Florida's beef and dairy industries hope to flourish.

Within comparatively recent memory our pastures just weren't good enough to support the proper number of the right kind of cattle. It took the University of Florida Agricultural Experiment Station scientists to solve the problem.

And the solution wasn't easy. Florida has a variety of soils. These soils vary widely as to their nutrient content and mineral deficiencies. All this meant a lot of experimenting, testing, devoted attention to the tiniest details of grass development.

In their endless experiments the scientists tested strange grasses with strange names from all over the globe—Rhodes, Pangola, Pensacola Bahia, Common Bahia, Argentine Bahia, Bermuda, Carib, Suwannee Bermuda, and St. Augustine, to mention a few. Similarly with pasture legumes such as clovers.

The scientists solved first the problems of which grasses would grow well in Florida's climate and then turned to the problem of soils and the necessary minerals and other nutrients necessary to make lush forage on each soil type.

Today, because the University Agricultural Experiment Station scientists played their role of nursemaids to strange grasses so well, Florida is a giant checkerboard of rich pastures.

The quart of rich Florida milk on your doorstep, the choice cuts of tender Florida beef in your market, the lawns, parks and parkways of our state all attest the importance of the redoubtable achievements of these men.

IDEAL Fertilizers and FASCO Pesticides—Your Profit Combination

IDEAL FASCO

WILSON & TOOMER
FERTILIZER COMPANY
and Divisions
FLORIDA AGRICULTURAL SUPPLY COMPANY
Peninsular Fertilizer Works—Tampa • Cartledge Fertilizer Company—Cottondale
GENERAL OFFICES • JACKSONVILLE, FLORIDA

XUM

Citrus Insect Control For November, 1952 . . .

R. M. PRATT AND W. L. THOMPSON*
CITRUS EXPERIMENT STATION,
LAKE ALFRED, FLORIDA

Due to recent weather conditions, insect and mite populations are not following well defined trends. While data on the exact relations between moisture conditions and scale and mite populations on citrus are not yet available, there is little doubt that long periods of warm, moist weather are favorable for entomogenous fungi which cause diseases of these pests. Thus, prolonged showery periods such as have been experienced during the past month can be expected to have a depressing effect on infestations.

On the other hand there has been a recent increase in hatching of both red and purple scales and a generally increasing trend in mite activity. These trends have tended to balance the effect of the wet weather so there has been comparatively little change one way or the other in the last two weeks.

The average infestation of both purple and red scales is substantially lower than a year ago. There are no indications of any major increase in November. However, there are groves having above average infestations which will suffer considerable damage if scales are not controlled. Many of these have not been sprayed with a scalicide since early Spring.

An upward trend in purple mite activity has been slowed by the recent showery weather. If November is cool and dry, the population can be expected to increase rapidly. Some groves are already heavily infested, and defoliation will result if the mites are not controlled promptly.

There has been a drop in average rust mite infestations during October, but the population is still very high. Activity is now higher on leaves than on fruit and some increase is expected on both during November.

Spray Programs

Purple and red scale infestations are not so numerous as they were at this time last year, but some groves will need treatment during November. Timing the sprays for young stages will be difficult during the Winter months because of changing temperatures from warm to cool periods, so it is not advisable to wait for a hatch of scale to apply the scalicide. Parathion is recommended for scale control during the Fall and early Winter months. Oil sprays should not be used except in groves where it is not practical to use parathion. November oil applications are not recommended because of the danger of excessive injury to trees following freezing temperatures that may occur any time until March. The effect of oil on the trees does not disappear within four to six weeks, but has been evident throughout the Winter when freezing temperatures occurred. A November oil spray may also affect the trees to the extent that a normal amount of bloom will not develop in the Spring.

Purple mite infestations are more or less general and are heavy in some groves, so regular inspections should be made. During November and through March, the Summer and Fall growth should be inspected for mites. Especial attention should be given to inspecting the young, green wood because mites are sometimes more numerous on it than on leaves. Tree tops should be also inspected. At times there are mites present on the top branches when very few can be found on foliage on the lower part of the tree. Control measures should be taken before a heavy infestation develops if a leaf drop is to be prevented. Twigs defoliated in November or December will die before Spring.

Rust mites are with us throughout the year. Many crops are injured during the Fall and Winter months because of lack of careful inspection. After the fruit has colored, always inspect the leaves for mites. Mites are difficult to see on a yellow or orange colored fruit, so the leaves should be inspected as well as fruit. Rust mites are also most numerous in tree tops during cool weather.

Scale Control: Use 1 2/3 pounds of parathion plus 6 to 8 pounds of wettable sulfur and if purple mites are present, add one of the DN compounds. Make the applications on calm, warm days. Usually it is not necessary to spray a large acreage at this time of the year, so it is more practical to wait until the weather is satisfactory for spraying, than it is during the Spring and early Summer when large acreage must be covered.

Purple Mite Control: Either DN Dry Mix or DN 111 can be used at this time of the year in a spray or dust form. Sprays are more effective than dusts because a more thorough coverage can be obtained on the upper and lower surfaces of the leaves. During the Winter a 1 1/2 percent of DN Dry Mix-sulfur dust is safe to use and is more effective than a one per cent dust. Regardless of the type of miticide used, an attempt should be made to get thorough coverage, especially the tops of the trees. Since there are usually more mites in the top branches and these branches are more exposed to rain and wind, a thorough coverage is necessary.

Rust Mite Control: One gallon of lime-sulfur plus 6 to 8 pounds of wettable sulfur is the best combination for Winter control of rust mites. However, lime-sulfur should not be applied on Hamlins, Jaffas or tangerines. If the DN compounds are to be used for purple mite control, omit the lime-sulfur and use 8 to 10 pounds of wettable sulfur. Sulfur dust is not as effective in cool weather as in warm weather. In cool weather a more thorough coverage is necessary with either a sulfur spray or dust for satisfactory mite control. There is little or no fumigating effect of sulfur in cool weather, so in order to obtain a high percentage of kill the sulfur should come in close contact with the mites.

For more detailed information refer to the 1952 "Better Fruit Program" or consult the Citrus Experiment Station at Lake Alfred or Fort Pierce.

* Written October 23, 1952. Reports of surveys by Harold Holtsberg, Cocoa; J. W. Davis, Tavares; K. G. Townsend, Tampa; J. B. Weeks, Avon Park; and T. B. Hallam, Lake Alfred.

VALENCIAS HALF OF CROP

Valencias constitute more than half of the U. S. orange crop in most years. Of the 1950-51 crop of 116,910,000 boxes, Valencias were 62,750,000. The variety probably originated in the Azores. It was imported into England before 1865 by Thomas Rivers and grown in orangeries under the name "Excelsior." He sold the variety about 1870 to S. B. Parsons, a Long Island nurseryman.

Florida Citrus Mutual Forecasts Profitable Season

Even though the new crop of oranges now hanging on the trees in Florida is the biggest ever, it isn't big enough to supply everybody with all the oranges they want to meet expected demands.

Economists at Florida Citrus Mutual are convinced the 81 million boxes forecast by the federal government falls several million short of potential demand.

This should mean a somewhat better price for the grower. Mutual is working on a price information program which it hopes will make it possible for its grower members to dicker more intelligently with those trying to buy or handle their fruit, enabling them to get its actual market value.

Growers affiliated with cooperatives will also benefit from any higher price resulting from a shortage in supply, in the checks they receive as "pool" funds are distributed.

The U. S. estimate of the new orange crop is only a little more than two million boxes larger than production last season, when concentrators used 33 million boxes of fruit to make 44 million gallons of their product. They will need possibly 40 million boxes during the coming season to produce the 50 million gallons of concentrate required by constantly expanding demand.

A somewhat better season also is in prospect for grapefruit, Mutual believes, because of a smaller crop and the better orange prices which are indicated. The 33 million boxes of grapefruit forecast for this season barely equals the volume actually used last season, when three million boxes went unpicked for lack of a market.

Stocks of canned grapefruit juice are only a third what they were at the same time last season and demand by processors should be substantially better.

Orange prices have a direct bearing on what grapefruit will bring. The housewife snubs grapefruit juice on the grocer's shelf unless it sells for a nickel or so less than orange juice. If orange juice prices are up a little this coming season, grapefruit juice prices also will go up and the grower should benefit.

Proper distribution of the orange and grapefruit crops into the various outlets is essential, Mutual believes, if the industry is to get the full benefit resulting from supplies which are not sufficient in the case of oranges and do not represent a surplus in grapefruit. Mutual is devoting its efforts to developing educational methods to keep growers, shippers and processors fully advised on the volume which should be fed into each outlet for maximum returns.

Last year, price cutting to move canned stocks before the season opened left its imprint for some time. Except for an occasional cut in frozen concentrate quotations this fall, when one company or another was making a special promotional effort, this distributing type of merchandising has not been

(Continued on page 18)

New Buds in Lake Garfield Nurseries
Photographed October 15, 1952

Orders Should Be Placed Now To Get What You Want For Planting During Coming Winter and Spring

LAKE GARFIELD Trees are very much in demand as usual . . . and some varieties and sizes will be sold out early.

Come to see us, call or telephone, or write us a letter. Tell us what you expect to plant, so we may get together with you and save the trees you want.

Lake Garfield Nurseries Company
CITRUS TREES EXCLUSIVELY
P. O. Box 154-T
BARTOW . . . . . Florida
BUDWOOD SELECTION AND QUALITY Is Our Motto

The Citrus Industry
EXCLUSIVE SPECIALIZED CITRUS PUBLICATION
Issued Monthly
Representative of every interest
Representing no special interest

Publication office at Bartow, Florida. Entered as second class matter February 16, 1920, at the post office at Tampa, Florida, under the act of March 3, 1879. Entered as second class matter June 19, 1933, at the post office at Bartow, Florida, under act of March 3, 1879.

Some Results In Hedging Trees . . .

MORTON HOWELL
AT CITRUS GROWERS INSTITUTE
CAMP McQUARRIE

Why is my unit cost of producing citrus increasing? Why is my production fluctuating in the past few years? These are common questions raised from people that own groves thirty years old and better.

These questions are of utmost importance with a price decline in citrus that has been somewhat general in nature the past two years.

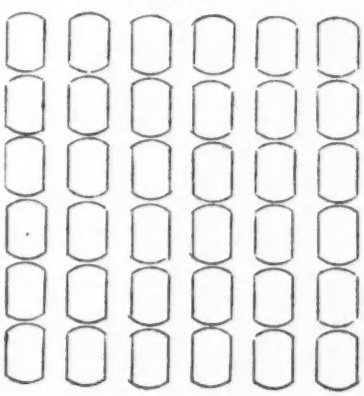
Ten years ago we were thinking of this problem from an operational hazard and not an economical one. However, during the early forties, one could show a good profit on an unproductive grove and unit cost (per box cost) was not very important. Then the new planting era began and this increasing total volume of citrus produced in the state, unless an unforseen catastrophe arises, soon we will be in the chaotic condition that existed in the thirties. This was namely **more fruit than the trade could consume.**

True, the processing outlet has been a blessing so that more citrus can be consumed, but it is becoming more competitive in every sense. This makes production, harvesting, processing, and distribution -sales all highly competitive.

Growers and production men are slowly awakening to this very disturbing problem on groves with interlocking limbs and even worse, a completely shaded condition. There isn't any cover crop; insects and fungus are running rampant; pickers are reluctant in picking this type grove; fruit doesn't color; irrigation becomes a must; and above all the net returns begin to fall.

Of course, the first thought is that the fertilizer isn't any good and the spray materials do not show results as they use to; dry weather came at the wrong time or any other thought but one of the basic evils which is "too many trees per acre". Therefore, it has been only in recent years any great thought has been given to canopy type groves. In my humble opinion, we have only scratched the surface as to problems that confront us on close planted groves. Neither is there a common solution to fit every case. The reason groves are initially planted close is for a higher yield as soon as possible. This is true until the grove reaches about twenty years of age. Then yields begin fluctuating and declining, whereas, the fertilizing and spraying increases or remains the same and all other costs rise.

CHART NO. 1



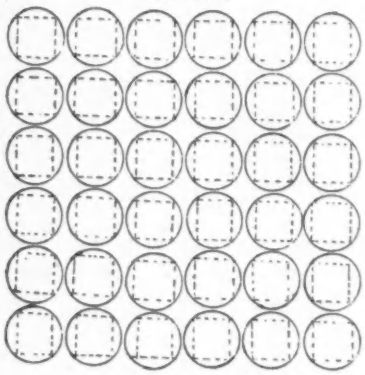
(1). Hedging should begin long before limbs interlock.
Suggested best results obtained on tangerines.

First, a grower has to make up his mind something has to be done and formulate the most logical solution after the solution is reached, proceed to carry out the plan adopted. One can hedge, hedge and remove, or tree removal. In the past few years, we at Waverly and many others throughout the state have adopted the above plans. Each plan adopted was dependent on setting, variety, and location.

As shown in chart one, the plan of hedging is probably followed more than any other. This is particularly useful in 20' x 30' planting or wider. Hedging is simply what the word implies. Cutting back of larger branches and allowing the

space to be filled in with smaller branches and never allowing the branches of two or more trees to interlock which causes shading out of lower branches. The proper time to initiate hedging is when an occasional branch will scrub against equipment passing down a middle. By so doing, there is never any large limbs to cut or any large opening to fill in resulting from a large limb being removed. However, if this has not been done at the most opportune time, it is my suggestion to cut back at least three feet more than the opening you desire. The reason being, your follow up maintenance will be less expensive and you will be surprised how fast it will fill in.

CHART NO. 2

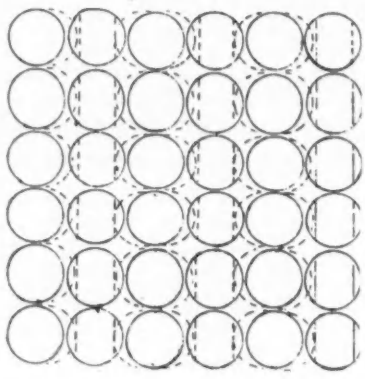


(2). Method used more on Tangerines.

Along with making your initial hedging wide enough to insure the greatest benefits, go high enough until there isn't any possibility of overhang. This assures adequate sunlight which assists in filling in of bearing surface, better color of fruit and less chance of disease that thrives on shade. Our first hedging was done from necessity of making avenues thru which fruit could be hauled. Box middles were made and from the results obtained, hedging was born. It is proving advantageous on all varieties and records indicate the production on hedged groves is yet rising. The fruit has better color and both internal and external quality is improved. Records bear out the economy in the use of less plant food and spray materials per box of fruit. There is less difficulty in application of fertilizer and sprays. Application equipment increases in efficiency, cover crops develop, soil retains moisture better, picking and hauling is greatly assisted.

The color and maturity of all varieties, particularly tangerines, is improved. Tests indicate through the ability of having more outside fruit solids are raised and that precious color is there. You that have tangerines realize the discouraging problem of small sized and

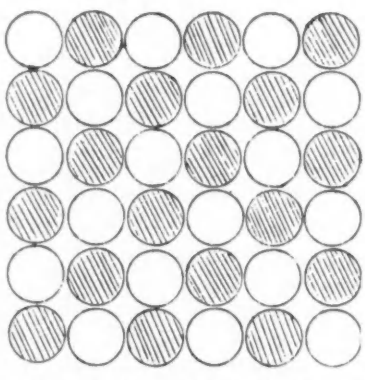
CHART NO. 3



(3). Recommended method when reduced crops are not desired immediately.

green tangerines. This is far more apparent on twenty year old and better trees. We have been informed by reliable research men that the best sized and colored tangerines are produced on three year old wood and less. You have noticed where a large broken tangerine limb is removed, for the next three or four years the fruit from growth of the broken limb

CHART NO. 4

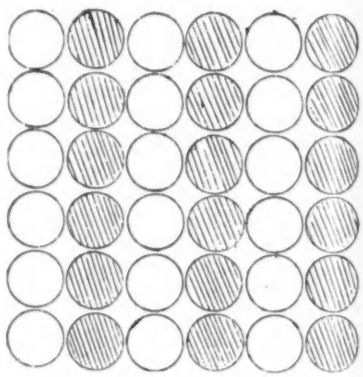


(4). Broken circles indicate trees to be removed.
This method has been used on all varieties and climbing production is attained in the third year.

is large and well colored. By the same token, you obtain like results from hedging.

Another method as shown in chart two, we have used in hedging which has applied more on tangerines than other varieties is boxing. This implies that all four sides of the tree is cut back leaving a square shaped tree. As stated before the best tangerines seem to be on three year wood growth or less and makes this method on old tangerines show much promise. Again if done by hand, the initial operation is costly. However, when your returns show red ink for eight boxes of small sized and green tangerines, whereas, three boxes of shippable tangerines show three to five dollars gross returns per tree; it is not an expensive operation. Done by hand, this method will involve about one dollar per tree and very small amount

CHART NO. 5



(5). Broken line indicates trees to be removed.
Recommended if terrain does not allow removal as in chart No. 4.

of fruit loss the first season after the operation. Again you have a choice of doing all at once or spreading over a period of two to four years. In conjunction with this boxing method, we have cut out the tops of some trees similiar to handling of peach trees. As the first crop is now on these trees, the results are nothing more than promising at this time. Particularly on tangerines, the thought is more sunlight and better color with larger sizes.

Thus far, we have discussed strictly hedging which in our opinion is here to stay. In addition to hedging, add tree removal and this is the solution to many situations as shown on chart four. As an example, on a 25' x 25' planting with a canopy fast becoming a reality. Choosing the number of trees desirous of removing and gradually hedging back the trees to be removed and allowing the remaining trees to enlarge their bearing surface and then complete

removal of hedged trees. The question then arises, where can I plant those trees being removed? The answer is concurrent with the statement of one grower that is following this procedure: "If you have no land in which to plant **use the axe and fire method.**" This requires strong willed decisions but it seems to be the only answer where no vacant land exists. This is entirely more emphatic if the moving is entirely a hand operation. At the present, we have only one concrete example of initial cost and loss of fruit involved. This is on a block of valencias 25' x 25' about thirty-five years of age. The owner decided upon the hedging and removal program on every other row on the diagonal. This was all hand labor and done January of this year. Therefore, the crop of '51-'52 was cut off during the operation where fruit was on limbs to be removed. The cost was $1.32 per tree and 193.5 fruit per tree were cut off. Using size 200's it involved the loss of one box per tree. Again this was valencias, so name a season of the year when fruit isn't present on the tree. We believe the best time for hedging is during the late dormant season and salvaging of all fruit possible. Following this idea one can see many varieties can be hedged when there isn't fruit on the trees.

In many cases, tree removal has been done without hedging and these results have been gratifying. Some have used bulldozers and burned the trees removed. Others with available ground have replanted trees being removed. Where this has been followed, mechanical means have been devised where volume permitted the investment for machinery. All cases to my knowledge have by the third year from removal surpassed the volume picked per acre on remaining trees. Also, the unit cost was reduced and many production problems removed.

It seems the key to hedging in the future is not that it should be done, but the way to get it done economically. From investigation, it appears the solution has almost been reached. This being a machine which the Citrus Experiment Station has approved. This is a series of saws about twelve inches in diameter which can be adjusted as to height. The cost of the materials other than power unit and truck or trailer to mount it on can be obtained for about three hundred dollars. With the pilot model trees of thirty-five years of age were hedged on two sides with an average cost of $7.50 per acre. This is counting labor and depreciation of equipment used.

With pneumatic tools it is considered 33% of the cost by hand and the mechanical saws unit 10% of the cost by hand. This is encouraging and I feel before another Institute is held a report with adequate concrete facts relative to hedging will be available.

The problem of brush disposal is the next. We have found no harmful effects by just leaving it under the tree. Do not pile close around trunk and if less than one inch in diameter in a few months a chopper will break them up and be incorporated in the soil. If this is not desired, a machine is available which makes chips of limbs. Last and expensive is hauling out of grove and burning.

We have found where an eight foot avenue is made the follow up maintenance of the hedging is not necessary for two to three years after the initial operation. The time before follow up is necessarily dependent on seasons and varieties.

As to the proper procedure of whether to hedge each middle, every other middle or so other wise is entirely dependent upon each situation. Some seek to take the shock all at once and others in two or three years. We use the "every other row, every other year" method on our initial operation and it has worked out satisfactorily in the majority of our cases.

Citrus Commission Increases Field Staff To Forty-Four

Acting with the approval of the twelve man Florida Citrus Commission, as obtained at the last meeting of that group on September 10th, the merchandising division of the state promotion agency has announced the addition of five more merchandising representatives to its expanding field staff.

The new men, one each to be assigned to the Kansas City, Boston, and Philadelphia territories, and two to the Chicago area, bring the field strength of the merchandising staff up to forty-four men. At the last Commission meeting, an increase of four men was authorized.

Three of the new additions to the citrus promotion team have Florida backgrounds. One, Carl P. Schuler, now a resident of Fanwood, New Jersey, was a student at Florida Southern College of Lakeland. During his college years, he acted as president of both his senior and junior classes. Schuler is 24 years of age, and will be assigned to the Boston territory.

Clyde La Velle Ergle, Jr., of 513 Finney Street, Lakeland, a native of Ft. Meade, will be one of the men to join the Commission's staff in the Chicago territory. A graduate of the University of Florida, Ergle majored in agricultural economics, and marketing and has received other training in citrus marketing. Also 24 years of age, Ergle served in the Marine Corps in the last war.

The new Philadelphia field staffer for the Commission will be John Gunnels, a former resident of Haines City, and now of Miami, Florida. Twenty-five years of age, Gunnels is married and the father of two children. A veteran of the U. S. Navy, Gunnels has been employed by the Miami Daily News in their merchandising department. Gunnels is being assigned to the Philadelphia area, will replace Robert Newman, who has been promoted to Regional Manager of the St. Louis territory.

James G. Gerhard, a resident of Forest Hills, New York, will be permanently assigned to the Kansas City market. A former student of Fordham University, and more recently associated with the Sunkist Growers, Inc., Gerhard will do dealer service work in the important western territory. Single, and 28 years of age, Gerhard is a former corporal in the U. S. Army.

The Chicago staff will be augmented with the addition of Robert T. Kruppe, a native of that city, and now a resident of Elmhurst, Illinois. Married, and 27 years of age, Kruppe is a graduate of the University of Illinois. Recently, he has been employed by the National

(Continued on pafe 10)

XUM

Sixty-Fifth Annual Meeting Florida State Horticultural Society

The Sixty-Fifth Annual Meeting of the Florida State Horticultural Society will be held at St. Petersburg November 5, 6 and 7, with headquarters at the Soreno Hotel.

President Frank L. Holland and Secretary Ernest L. Spencer give assurance that the meeting will compare favorably with any of the great gatherings which have gone before. The preliminary program, just issued, seems to give weight to this assurance.

The Florida State Horticultural Society for the past sixty-five years has played a leading role in the expansion and development of the Florida citrus industry. It has met every emergency, every threatened disaster with understanding and practical measures. As an organization bringing to the attention of growers the latest in scientific achievement and the most practical in field practices, it has served the industry faithfully and well.

The program of the Sixty-fifth annual meeting as it concerns citrus growers is published herewith. State and National citrus experts, both in the line of scientific research and practical field operations are scheduled for important papers dealing with practically every phase of the citrus industry. Indications are that the meeting will be largely attended and the extent of the program assures that growers will be well rewarded for the time spent at this annual gathering of the horticulturists of Florida.

PRELIMINARY PROGRAM

Friday, November 7, 1952
Frank L. Holland, President Presiding

9:15—Radio Active Tracer Elements as Tools in Modern Plant Science Research. Roger W. Bledsoe, Agricultural Experiment Station, Gainesville.

9:45—Problems Involved in the Marketing of Horticultural Products, both Citrus and Vegetables. S. R. Smith, Director, Fruit and Vegetable Branch, P.M.A., U.S.D.A., Washington.

CITRUS SECTION

W. L. Thompson, Vice President Presiding

Thursday Morning, November 6

9:30—The Effect of Copper Sprays on Grapefruit Maturity in the Presence and Absence of Lead Arsenate. E. J. Deszyck, H. J. Reitz and J. W. Sites, Citrus Experiment Station, Lake Alfred.

9:55—Evidence of Quick Decline or Tristeza Virus in Florida. Theodore J. Grant, U.S.D.A., Orlando.

10:20—Attempt to Control Tristeza by Eradication and Aphid Control. E. P. Ducharme and L. C. Knorr, Citrus Experiment Station, Lake Alfred.

10:45—Citrus Rootstock Trails. A Nine Year Progress Report on Seven Rootstocks on Lakeland Soil. James A. Cook, George E. Horanic and F. E. Gardner, U.S.D.A., Orlando.

11:10—Cause of Yellow Tipping in Citrus Leaves. Ivan Stewart and C. D. Leonard, Citrus Experiment Station, Lake Alfred.

11:35—Correction of Iron Chlorosis in Citrus with Chelated Iron. C. D. Leonard and Ivan Stewart, Citrus Experiment Station, Lake Alfred.

Thursday Afternoon, November 6

2:30—Seasonal and Geographiacl Distribution of Some Citrus Insects and Mites in Florida. R. M. Pratt, Citrus Experiment Station. Lake Alfred.

2:25—Some Varietal Responses of Florida Citrus to 2,4-D for the Control of Pre-Harvest Drop. Philip C. Reese and George E. Horanic, U.S.D.A., Orlando.

2:50—Mineral Composition of Citrus Leaves from the Indian River Area of Florida. H. J. Reitz and W. T. Long, Citrus Experiment Station, Lake Alfred and Ft. Pierce.

3:15—Methods of Applying Insecticides with Different Spray Machines. C. R. Stearns, Jr., W. L. Thompson and R. B. Johnson, Citrus Experiment Station, Lake Alfred.

3:40—Observations on Insect Control in Relation to Coverage of Sprays in Commercial Operations. Arthur Mathias, Lakeland.

4:05—A Citrus Budwood Certification Program for Florida. R. S. Edsall, Vero Beach.

Friday Afternoon, November 7

1:30—The Effect of Variable Potash Fertilization on the Quality and Production of Hamlin and Valencia Oranges. J. W. Sites, Citrus Experiment Station, Lake Alfred.

1:55—Pruning Citrus in Relation to Disease Control. J. F. L. Childs, U.S.D.A., Orlando.

2:20—Effect of Copper Concentration on Growth of Citrus Seedlings. Walter Reuther and Paul F. Smith, U.S.D.A., Orlando.

2:45—The Effect of Copper, Zinc, and Manganese on the Iron Nutrition of Citrus Seedlings in Solution. Paul F. Smith and A. W. Specht, U.S.D.A., Orlando.

3:10—The Effect of Spreading Decline on the Root Distribution of Citrus. Harry W. Ford, Citrus Experiment Station, Lake Alfred.

3:35—Decay-inhibiting Properties of Pyrrolidine and of Mixtures of Pyridine and 2-Amino pyridine. J. R. Winston, U.S.D.A., Orlando.

PROCESSING SECTION

L. G. MacDowell, Vice President Presiding

Thursday Morning, November 6

9:30—"Paired Comparison" Taste Panel Procedures for Citrus Juices. Allan Edmond Wilson, Minute Maid Corporation, Plymouth, and Warren Durward Hanson, University of Florida, Gainesville.

10:00—Selected Studies of Consumer Preferences for Canned Orange Juice. Richard L. D. Morse, Florida State University, Tallahassee.

10:30—Preparation of Tangerine Puree. Gray Singleton, Southland Frozen Foods, Inc., Lakeland.

11:00—Comparison of Experimental Packs of Tangerine Concentrate. F. W. Wenzel, R. W. Olsen, E. L. Moore, R. L. Huggart, and C. D. Atkins, Citrus Experiment Station, Lake Alfred.

11:30—Frozen Concentrate Cit-

XUM

rus Juices-Co-Packer Quality Control. H. S. Madsen, Birds Eye Division, General Foods Corporation, Lakeland.

Thursday Afternoon, November 6

2:00—Pectinesterase Retention in Citrus Juices Stored at Various Temperatures. A. H. Rouse, Citrus Experiment Station, Lake Alfred.

2:30—Changes in Pectic Substances in Valencia Orange Juice during Concentration. J. H. Dietz and F. W. Wenzel, Citrus Experiment Station, Lake Alfred.

3:00—Clarification in Heat-treated Pineapple Orange Concentrate during Storage at 32°F. C. D. Atkins and R. L. Huggart, Florida Citrus Commission at Citrus Experiment Station, Lake Alfred.

3:30—Effect of Concentration on the Rate of Clarification in Concentrated Citrus Juices. R. L. Huggart, Florida Citrus Commission at Citrus Experiment Station, Lake Alfred.

4:00—Ultrasonic Treatment of Orange Juice Products. T. J. Kew, U. S. Citrus Products Station, Winter Haven.

Friday Afternoon, November 7

1:30—Viscosity of Citrus Molasses. R. Hendrickson, Citrus Experiment Station, Lake Alfred.

2:00—A Study of the Glucosides of Citrus. J. W. Kesterson and R. Hendrickson, Citrus Experiment Station, Lake Alfred.

3:00—Reduction of Scale Formation in Citrus Molasses Evaporators. R. W. Kilburn, Florida Citrus Canners Cooperative, Lake Wales.

Citrus Growers May Get Rebates

Shippers of Florida fresh citrus fruit who have made rail shipments to certain points West of the Mississippi River since November 1, 1950, may be entitled to refunds from the railroads on the basis of overcharged freight bills. The points involved are those on and East of a line running approximately through Springfield, Kansas City, and St. Joseph, Missouri, Omaha, Nebraska, and Minneapolis, Minnesota, which may be made intermediate to points in Wisconsin such as Ashland, Cameron, Eau Claire, and Rice Lake. The territory outlined above is only approximate, as there may be additional points involved, depending upon the routing used on any particular shipment.

In Supplement 160 to the Citrus Fruit Tariff, SFTB Tariff 782, Agent Spaninger's ICC 642, effective November 1, 1950, citrus fruit rates to upper Wisconsin points were reduced and no specific restriction was made as to routings to these points. This lack of routing restriction made the rates to the Wisconsin points applicable to points West of the Mississippi River through use of the intermediate rule, and results in considerable reductions in the rates to these intermediate points on some shipments. Shipments which have moved since November 1, 1950, are entitled to the reduced rates to the Wisconsin points and also to the further reduced rates to the Wisconsin points which were published in Supplement 10 to SFTB Tariff 782-A, effective February 28, 1952.

Freight bills on shipments since November 1, 1950, to points in the involved territory should be checked to determine whether or not refunds are due from the rail lines.

DOLOMITE PRODUCTS ADDS ANOTHER FIELD REPRESENTATIVE

W. H. Cook, a graduate of Clemson College in 1948 with a B.S. degree in agronomy, has become affiliated as Field Representative with Dolomite Products Inc., of Ocala, Florida, it has been announced by W. M. Palmer, president of Dolomite.

Mr. Cook, who is widely experienced in the agricultural problems of Florida, will make his headquarters at 1029 South Mississippi Avenue in Lakeland, according to Mr. Palmer. Although available on a state-wide basis, he will primarily serve growers in the central counties of Hillsborough, Polk, Osceola, Brevard, Citrus, Sumter, Hernando and Pasco.

This brings to three the number of agricultural specialists serving the growers of Florida through Dolomite Products, Inc. Mr. E. J. Meyer will continue to make his headquarters in Arcadia and will serve the growers in the territory south of the central counties. Mr. Joe C. Middleton, whose headquarters are in Ocala, will serve the northern part of the state.

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The Other Side of The Wide Tire Rim Dispute

The publication in last month's issue of this magazine of excerpts from a paper by E. G. McGibben and I. F. Reed, of the Division of Farm Machinery, U. S. Department of Agriculture, Tillage Machinery Laboratory, has brought out the following response from R. W. Sohl, manager of the Tractor and Implement Tire Development Department of Goodyear Tire and Rubber Co. Mr. Sohl cites tests made in sand near Winter Garden, Florida, in opposition to the tests made by Messrs. McKibben and Reed in Alabama.—(Editor.)

I am thoroughly familiar with the tests referred to by Messrs. McKibben and Reed, as the project was started at my suggestion at a meeting of Tractor Engineers in September, 1950, and our Company was one of the sponsors of this work and supplied the R-3 type tires for test.

These tests were run in the beds of the USDA Soil Tillage Laboratory at Auburn, Ala., using a modified tractor having only one wheel which pulled the dynamometer car carrying the instruments and operators. This tractor has no front wheels and the front end bears on a cross member of the dynamometer car which spans the bed in which tests are being made.

We ran some tests in November 1950 in a citrus grove near Winter Garden, Fla., in cooperation with the Pounds Motor Company of that city, in which we used the same size and type of tire and the same rim widths as were used in the USDA tests.

We used a Case DO butane tractor pulling another similar tractor behind which was hitched a tandem disc harrow. The drawbar load variations were obtained by pulling the towed tractor in various gears and also using the tractor brakes in addition where necessary.

The following tabulation shows the comparison of our test results with those of the USDA in sand, at 8 pounds inflation pressure:

Percent Slip	10	15	20	25	30
	DRAWBAR PULL PER TIRE IN POUNDS				
USDA (2460 lb. Load)	880	1020	1070	1080	1070
Goodyear (2380 lb. Load) Average	880	1007	1077	1122	1160
	GOODYEAR TESTS IN FLORIDA				
Rim Width		12"	14"	16"	18"
Pull at 20% Slip (1 wheel)		1020	1040	1100	1150

The following differences in test conditions may be of interest:

1. Our tests in Florida were on an owner's tractor in his grove under normal conditions, whereas the USDA tests were run in a semi-laboratory set-up and not on a regular tractor.

2. Our tests were all done in a single day, whereas the USDA tests extended over a 5-day period with only two rim widths tested in any one day, and a mathematical correction was required to provide a basis for comparison.

3. Air inflation only was used in USDA tests while we used partial water filling as we matched the weight of the owner's original tires and rims when test tires were applied, duplicating his actual service conditions including the partial water-filling.

4. The USDA tests were carried to higher slip values as they are able to control drawbar loads thru the entire range whereas in field tests in sand when slip values get above 30% results are quite erratic.

We have gone over both tests with Dr. McKibben, and while he does not agree with our results, it must be admitted that we were working in much more nearly actual field conditions than the USDA tests, and they had as much as 15% variation from one day to another with the same equipment.

5. The USDA tests also did not attempt to evaluate flotation, stability or other factors of wide rim use which we know are important to users in many cases. They did indicate that there was less buckling and wrinkling of the tire under given load and pressure conditions with wide rims and this should give longer tire life.

Wide rims are being used by farmers in many parts of the country besides Florida, and I can't believe that these people are spending their money for this rim widening job without getting some positive benefit in return.

May we suggest that you contact the McMillen Bros. grove on Florida Route 50 just west of Killarney, and see what they think of wide rims, as at the conclusion of our tests in November 1950 we left a set of 14-26 All Weather tires on 18" wide rims on the tractor we tested on to be run in regular operation to see if any harmful effects on the tire would result. I saw this equipment last February and by now it must have over 3000 hours in the tires.

The 16" rim is the widest one we recommend for the 14" tire, and that only in sand or other conditions where maximum flotation is needed, and this 18" width was run only as an experiment.

There has been a trend to wider rims on all motor vehicles during the past few years, including passenger cars, trucks, earth-moving equipment, etc., and while farm tractor tires have been on wide base rims for 12 years, in our larger sizes of tires our rim width ratio to section width of tire has been under the normal of 84%, and this has no doubt had some influence on widening of rims.

CITRUS AGENCY INCREASES FIELD STAFF TO FORTY-FOUR

(Continued from page 7)

Biscuit Co., and Diamond Match Co., in sales and field supervisory capacities. Kruppe will replace Earl Norton in the Chicago area, as Norton is transferred to a new territory comprising part of Texas.

The various species of citrus are believed to be native to Southern Asia, including South China, Indochina and the Malay archipelago. There are indications oranges were grown in Burma 4,000 years ago.

Rail Refrigeration Test With Florida Citrus - November, 1950

J. R. WINSTON, Senior Horticulturist;
RANDALL CUBBEGE, Scientific Aid;
H. W. HRUSCHKA, Asso. Physiologist;
G. A. MECKSTROTH, Asso.Pathologist

A broad study of the transit refrigeration requirements of Florida citrus fruits, requested by the Florida Citrus Exchange and the Growers and Shippers League of Florida, has been under way since the fall of 1948. During this period, three sets of transportation tests and approximately 600 shipping tests have been made. The Florida Citrus Commission cooperated financially in these tests, which were conducted in cooperation with numerous shipping and receiving agencies. The transportation tests were planned to cover 1) the moderately cold weather of late fall or early winter, 2) the transition season from cold to hot weather in mid-spring, and 3) the moderately hot weather of late spring. The objectives of these accompanied tests were twofold: 1) to gain information on the range of commodity temperatures at different locations in the car when given the protective services normally utilized at the different seasons; and 2) to supplement findings obtained from the large scale shipping (non-accompanied) tests—commercial in every respect —made during the past three seasons by means of a single recording thermometer placed at a representative location in each car. With concrete evidence at hand from the accompanied tests showing temperatures throughout the load during the transit period, the shipper can better evaluate the data from the shipping tests in which only one or two thermometers were used, and thereby more intelligently select the most efficient car and expedient protective service for any given condition. A report on the 600 non-accompanied shipping tests is in preparation and will follow the reports of the three transportation tests.

This report covers the first of the accompanied transportation tests which was made in late November, 1950. Comparisons were made of various protective services in common use with loads in fan and non-fan double deck cars, mesh bags over wirebound crates and solid loads of crates in the regular cars. Some deviation from the original plan was necessary at the last minute because of the cancellation of orders for two cars after they had been loaded and unseasonably cold weather during the first half of the trip. This subfreezing weather required some deviation in the services that involved changing to standard ventilation (keep vents closed below 32°) at both Savannah and Hamlet. As these low temperatures would require vents closed during this portion of the trip and so defeat one of the main objectives of the test, it was decided to open the vents and keep them open under special ventilation rules so long as there was no danger of freezing in the coldest part of the load. However, as air temperatures were down as low as 15° at Hamlet, only the diagonal vents were kept open until the temperature rose above 20°. The test, as finally made, consisted of 7 cars. The cars were loaded on November 24 in Orange and Lake Counties, Florida, and were assembled at Wildwood late that night. Routing was via the Seaboard Air Line; Richmond, Fredericksburg and Potomac; and Pennsylvania Railroads to the New York area.

Standard procedure was followed in preparing and loading all of the test cars, which were the end bunker type. Twelve electrical resistance thermometers, suspended from the ceiling in the forward end of the car, were placed in pre-determined locations along the centerline in each load and connected with a master cable that lead to the runningboard on top of

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the car. This outer end of the cable was so constructed that it could be plugged into a reading box thereby enabling the observer to note, at any time, the temperature at the 12 locations inside the car.

Two thermometers were used for car air and 10 for commodity temperatures. One of these air thermometers was placed in the air channel below the floor-rack at the bunker, the other about six inches below the ceiling, eighteen inches from the bunker. Fruit temperatures were taken by inserting the bulb of the thermometer into a fruit in the second layer in the crate separated by one fruit from the end and side of the crate. The crates containing the thermometers were placed in the bunker, quarterlength (half way between the bunker and doorway) and doorway stack of the load in the bottom, middle and top layers of crates. When the fruit was packed in consumer unit bags the thermometers were placed at the same relative location as was the case with fruit in crates. These were the standard positions used in each car and consisted of two air temperatures and nine fruit temperatures. The location of the twelfth thermometer varied. In double deck loads it was used to show the temperature of fruit just beneath the pad-covered deck, usually at the quarterlength, since it was thought that air circulation might be retarded by the padding material and large temperature differences result thereby. In loads of Bruce boxes, the spare thermometer was placed in the center of a box to compare temperature here with the outer second layer of fruit.

Inasmuch as test cars are usually loaded at different packing houses with fruit from different sources and of different quality, a direct comparison between cars is likely to be misleading in some respects. In order to have comparable fruit in each car for test purposes, a package of fruit of the same characteristics, from the same grove, was placed at the same location in each car. This test fruit was of medium size, U. S. No. 1 Grade. These test packages were examined critically at unloading and were held for one week at room temperatures when a final inspection was made.

The double deck cars were loaded with 7,168 5-pound open mesh bags. Two of the regular cars received a standard 525 box load of 1-3/5 bushel wirebound crates, while the third had 3,680 5-pound mesh bags over 210 1-3/5 bushel crates. Car F was precooled by means of its Preco fans for six hours at the loading point.

During the loading period commodity temperatures were taken with a fruit thermometer as the fruit was trucked into the car. A temperature reading was made with the resistance thermometers as soon as possible after completion of loading, and subsequent readings were made as frequently as circumstances permitted during the transit period.

RESULTS

Inasmuch as weather conditions during any transit period are an important consideration in the interpretation of results, a brief review of the outside air temperatures encountered during this transit period, is especially desirable, since the test cars were subjected to abnormal temperatures during the first and second day after loading. On the day of loading, the maximum outside air temperatures were

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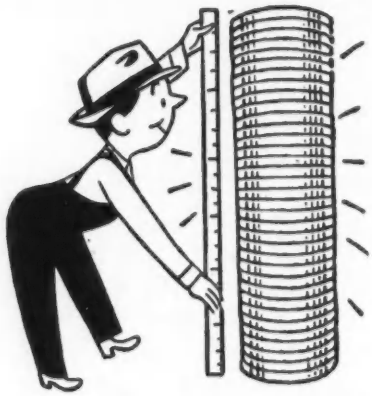

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FIELD REPRESENTATIVES

E. J. Meyer, Box 328, Arcadia, Florida

Joe C. Middleton, Box 578, Ocala, Florida

OCALA, FLORIDA

Plants at Lebanon (Levy County) and Sarasota, Florida

in the 70's followed by a sudden, unseasonable drop during the night with sub-freezing temperatures encountered throughout the following day and the second night after loading. The morning after loading, the temperature in North Central and North Florida was about 20 degrees below normal and from 20 to 25 degrees below normal along the route through Georgia and the Carolinas, gradually rising to about 5 degrees below normal when the test cars reached the Jersey City area.

Average Commodity Temperatures En Route

The average temperatures arrived at by averaging three positions in each of the three levels in each car reveal some interesting facts. During loading the average commodity temperature in the separate cars, ranged from 71.0° to 84.0°. At Savannah, the afternoon of the next day, the range was from 57.6° to 61.6° except in the precooled car which was 51.1°. North of Savannah, the most precipitous cooling occurred in the ventilated cars, the most rapid occurring in the one vented at Savannah. At Hamlet the next morning, the range was from 50.1° to 55.3° in the non-precooled and non-vented cars. In the precooled car, the commodity temperature averaged 45.7° and in the car vented at Savannah, it was 36.6°, representing an overnight reduction in commodity temperatures of 5.4 degrees in the precooled load in a fan car, and 23.5 degrees in the car with vents opened at Savannah. When the temperatures were recorded at Jersey City some 36 to 40 hours later, the range in all cars was from 38.6° to 44.9°, thus showing that the car vented at Savannah had a cooler load at Hamlet the next morning than was found in any car on arrival at Jersey City.

Re-icing at Hamlet and vents kept closed to destination did not result in cooling the load as rapidly as did only initial icing followed by ventilation beyond Hamlet.

The precooled load in a fan car was 7.3 degrees cooler than a comparable non-precooled load at Wildwood, whereas at Savannah, the precooled load was 7.6 degrees cooler, and at Hamlet 8.0 degrees cooler. At destination, the non-precooled load was 1.1 degrees cooler than the precooled load. The precooled load had a 12 to 15 hour advantage in temperature reduction over a similar, but non-precooled load. This time lag was maintained until reaching Hamlet where the non-precooled car was re-iced. Thereafter, the lag diminished, and had vanished when the test cars arrived at Potomac Yards where the average temperatures in the two cars were practically identical.

A more detailed accounting of the average temperatures in the bottom, middle, and top of the load separately during transit, together with that of ice meltage, follows.

Ice Meltage

Ice meltage was greater in the cars that were re-iced en route and the vents kept closed to destination, than that in the non-re-iced cars with vents opened. This difference was probably due, in part at least, to the low outside air temperature; low enough to aid greatly in cooling the load without melting much ice.

In the vented, but not re-iced cars, the bunkers had from 1,000 pounds to 5,000 pounds of ice at destination, the least in the fan car G, loaded with mesh bags over crates, and the most in the double deck car D, vented at Savannah.

The ice remaining at destination in the bunkers of the re-iced, but not ventilated cars ranged from 1,000 pounds in the precooled car F, to 6,400 pounds in the non-fan double deck car C, and fan car E.

The ice remaining in the bunkers on arrival at New York, ranged from 1,000 pounds to 3,100 pounds in the initially non-re-iced cars vented at Hamlet. This supply of ice aided by cool but nearly normal outside air temperatures, was suf-

(Continued on page 15)

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Possible Market Outlets For Florida Citrus Juices Through Dispensers

B. M. TOWNSEND, MGR.,
BEVERAGE AND DISPENSER DIV.,
FLORIDA CITRUS MUTUAL
AT CITRUS GROWERS INSTITUTE,
CAMP McQUARRIE

"By Dispensers we mean machines that will dispense a retail consumer serving of citrus juice at the point of sale. In our planning there are four main types of dispensers. Of these, most numerous is the counter-type, which has a cooled chamber for several gallons of juice and is manually operated with a faucet in front. It is called the counter-type because it is usually on the counter of a restaurant or on the shelf along the wall. It is commonly cooled with electric refrigeration.

"Among the vending machines, that is, coin operated, the Mills machine is the best known of those serving concentrate. The concentrate is mixed with water automatically and served in a paper cup when a coin is inserted in the machine. A similar coin operation actuates the Snively vending machine, which serves an excellent drink of pure single strength orange juice.

"Likewise termed a dispenser, because it often comes equipped with a reservoir for juice and a faucet, is the Automatic Orange Juicer machine, now common in super markets. This machine is effecting a revolution in the fresh fruit trade in many places. The Food Fair chain of super markets now uses, according to last reports, some 160 of these automatic juicers. Customers can buy it by the cup, but most of the juice thus squeezed is taken home in pint or quart jars. It is kept on crushed ice after being extracted. Totals of a hundred gallons of juice in a day are very common for this automatic juicer.

"Among the counter-types, a machine in a good location will sell two or three gallons of concentrate a day—that is eight or twelve gallons a day of reconstituted juice. That total is above the average. The average is not easy to determine, because operators making money on dispensers don't like to stir up competition by telling of their success, and operators not doing good business are too ashamed of their results to tell the truth. But from such information as can be gathered we may say that at least a gallon per day of concentrate when the machine is in use is apparently a low average. In rough calculations we say that, taking into account both vending and counter-type dispensers, each machine for each day in use should account for a box of oranges, meaning around one and one-third gallons of concentrate per day.

"With time out for servicing and so forth, and as judged by the suggestive but not completely indicative reports of institutional-size cans in processors' inventories, counter-type machines do not averaage as much as 365 boxes of fruit per year.

"To be very conservative in our planning in this dispenser program, we are saying that for every 3500 dispensers put into new locations, outlets are provided for another million boxes per year of Florida oranges. Grapefruit may come into this field more importantly later. Right now the consumer demand through dispensers is largely for orange juice.

"That figure of a million more boxes of fruit in demand every time we put out another 3500 dispensers provides a clue to our big opportunity for Florida citrus.

"If means can be found to cut in half the prevailing interest rate of nearly twelve per cent for installment financing of dispensers, Mutual could double the number of dispensers put into new locations annually for Florida juice.

"Many very successful operators of chains of dispensers are seeking this low-cost financing. Right now, if Mutual could finance the machines represented in these requests, about $2,000,000 worth of equipment could be placed during the next twelve months. That would make possible the installation of some fourteen or fifteen thousand more dispensers.

"Of course many machines will go into service in new locations during the next twelve months regardless of low-cost financing. The opportunities enable machines to pay off in countless locations, even with the Wall Street rate of interest which figures about 11 8/10% on the terms discounted for a three-year amortization.

"But it appears that if means are available to reduce this high interest rate and get money here in Florida at around 6%, and make this 6% money available to put out new machines without our seeking a profit on the equipment in the transaction, we could add perhaps 10,000 dispensers to the total that will go into service under the prevailingly high cost. We do not infer that the rate of approximately 12% is by any means exorbitant, in view of what the big finance companies do in handling all sorts of small accounts and keeping exhaustive records of marginal risks.

"But, for the major opportunity, and selecting reasonably sound risks only, and thereby reducing the costs of handling paper, we know from the Dispenser Division investigations by Mutual that if we can get money for as low as 6%, we can finance the users of the equipment on those same low interest terms, or very nearly the same.

"That is the big opportunity for the Florida citrus industry. Thorugh the far-sightedness of industry leaders who helped to establish the Dispenser Division in Florida Citrus Mutual information has been gathered whereby the practicability of this financing can be judged.

"At an early date it is hoped that full information can be laid before leaders of the Florida citrus industry who have been attentive to this dispenser possibility. I predict that the facts available for their consideration will be found very encouraging, relative to the realization of the opportunity that we have just reviewed.

"It has been a great pleasure to have had this opportunity of meeting and talking to you who re-

present almost every branch of agricultural science and packing and merchandising experience here in this group today. If I am privileged to be here again next year, I trust that we shall all be gratified by that time that steps have been taken to realize the waiting profits for Florida citrus from dispensers.

"Finally, let us bear in mind one fact—that dispenser outlets are **plus** outlets. Juice sold through dispensers is not diverted from other sales. It representes **more** sales. I thank you."

RAIL REFRIGERATION TEST WITH FLORIDA CITRUS, NOV. 1952

(Continued from page 13)

ficient to prevent a rise in commodity temperature during the five day holding period before the cars were unloaded.

The discussions based on averages may be misleading. This is particularly true when average temperatures in non-fan cars are compared with those in fan cars. For that reason a more detailed accounting by cars not only of ice meltage, but also of temperatures during transit is given.

Car A

A double deck car, equipped with Preco fans under the floor racks, was loaded with oranges in mesh bags. This car was initially iced with 8,000 pounds at Wildwood after loading, the vents were kept closed to Hamlet, when diagonal vents were opened. On arrival at Raleigh all vents were opened and kept open to Potomac Yards, there the car was converted to standard ventilation. The average commodity temperature during loading was 78.5°F. At Wildwood it was 75.7°, Savannah 59.0°, at Hamlet where the vents opened, 50.7°, Potomac Yards, 42.6°, and at Jersey City (Greenville Yards) three days after loading, the average commodity temperature was 41.6°. All parts of the load had fallen to 60° soon after reaching Savannah and to approximately 50° on arrival at Raleigh. The spread in temperature within the load was less than 5 degrees during the greater part of the trip, with the top fruit being coldest most of the time because of the car fans.

On arrival at Hamlet there remained approximately 2,400 of the 8,000 pounds of ice, supplied at Wildwood. At Potomac Yards there were 1,400 pounds remaining, and 1,200 pounds of ice was left in the bunkers when they were inspected at destination at noon of the fourth day after loading, resulting in a total ice meltage of 6,800 pounds during the transit period. There was still a trace of ice in the bunkers when the car was unloaded December 4, nine days after loading.

Car B

This test differs from that in car A only in that car B was not equipped with fans. The average commodity temperature during loading was 73.1°F, at Wildwood it was 69.7°, at Savannah 61.6°, and at Hamlet where the vents were opened it was 55.3°. At Potomac Yards, the average temperature was 41.2°, and at Jersey City (Greenville Yards) three days after

(Continued on page 18)

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Plants grow by the chemical actions of mineral nutrients, sunlight, water and carbon dioxide. The key to the combination is *chlorophyll*, the green plant substance that is essential for all plant life. Chlorophyll draws from the sun the energy needed for plant growth. Formation of chlorophyll in the plant depends on *magnesium*. If insufficient magnesium is available to the citrus tree, a typical deficiency symptom is a loss of the normal green color in the leaves. Magnesium-deficient citrus trees shed leaves in late summer or fall, leaving the fruit unprotected. The defoliated twigs become weak, subject to fungus infection and usually die. Magnesium deficiency symptoms are a warning signal that the chlorophyll content of the citrus tree is too low to capture enough of the sun's energy for healthy crop growth.

Experience shows that the most effective and economical way to supply the magnesium needed by citrus trees is in soluble form in mixed fertilizers. *Sul-Po-Mag* is a properly balanced combination of magnesium and potash, both in *sulfate form*, water soluble and immediately available to the crop. Leading manufacturers are now including *Sul-Po-Mag* in their mixed fertilizers for the profitable production of citrus.

Six Basic Functions of Magnesium

- Magnesium is the basic metallic element in chlorophyll, the green plant substance which captures the sun's energy that is vital for life and growth.
- Magnesium concentrates in the seed with phosphorus to aid in the formation of oils and proteins required for viable seed.
- Magnesium functions as a carrier of phosphates to the actively growing and fruiting parts of the plant.
- Magnesium is required to activate the processes which stimulate the production and transport of carbohydrates and proteins within the growing plant.
- Magnesium, in sufficient quantities, enables the plant to utilize other plant nutrients for healthy, disease-resistant growth.
- Magnesium stimulates the growth of soil bacteria and increases the nitrogen-fixing power of legumes.

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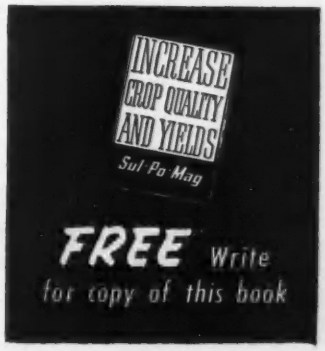

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The LYONIZER

Department

COMPILED BY THE LYONS FERTILIZER COMPANY

Reports Of Our Field Men . . .

NORTH HILLSBOROUGH AND PINELLAS COUNTIES
J. A. Hoffman

In the last few weeks citrus growers have been plowing and disc harrowing their groves preparing for the fall application of fertilizer, which will start about the 15th of Nov. and get into full swing by the 1st of Dec.

Most groves in this section put on a good growth this summer which has hardened and the trees seem to be in fine condition for the on coming winter.

We've had a good deal of rainfall which was really needed in the dry parts of this section. With cooler weather coming early, fruit should start to ripen and become a bright golden color which is helped by Lyonizing Your Crops.

POLK AND HIGHLANDS COUNTIES
J. T. Griffiths and J. K. Enzor, Jr.

Heavy rains have fallen during the month of October and cloudy weather has been the rule rather than the exception. This has been accompanied by fluctuating maturity tests and picking has been generally unsatisfactory. Some growers have started fall fertilizer applications, but most have delayed until approximately November 1.

Two grove problems have become evident this month. Hamlins and Jaffas particularly are splitting and developing blossom end rot throughout the area. Where lime sulfur has been used this is particularly true. In one grove it was noted where the grower will lose at least two boxes of fruit per tree as a direct result of lime sulfur-blossom end rot situation.

The tiny pits which appeared on the rind of grapefruit a year ago in the Ridge section have made their appearance again this year. These may be described as tiny pits which have a tannish to almost pinkish discoloration. They are present between the oil cells. In some instances they are co-incidental with late rust mite injury, but in some other instances there appears to be no complications with rust mite.

WEST CENTRAL FLORIDA
J. E. Mickler

This past month has seen the first shipment of fruit. The season has made a good start, and the feeling prevails that more stable prices will be the rule this year. The Fall application of fertilizer is being started this month in some of the groves in anticipation of a bumper crop the next year. Groves in general in this section look very good, and the fruit is sizing nicely.

SOUTH POLK, HIGHLANDS HARDEE, DeSOTO COUNTIES
C. R. Wingfield

I could express the conditions in this section in a very few words—"Wet to Too Wet". Wet in the Ridge area and too wet in flaw woods or low ground. We have begun to talk in terms of 3 to 6 inches of rain rather than the one inch we were so happy to receive a few weeks ago. The vegetable areas have been hardest hit due both to the heavy rains and the continued cloudy and rainy days that made spraying for Rust and Blights almost ineffective. Each day we hope that it will bring a change in weather conditions but as of this date (20th) we have rain and more rain. Losses in the entire vegetable section will run very high.

Citrus has come through in much better condition. We will possibly have a little damage in some low land groves from water standing around the trees but this will be very small in the over-all picture. Rains have slowed down picking but when weather permits it will be back in full swing. The fall fertilizing period is right on us and careful consideration should be given this important application.

NORTH CENTRAL FLORIDA
V. E. Bourland

We have had the best rains in the last few days that we have had in months, the ground is getting wet, and lakes are beginning to rise some. Groves are all looking better since the general rains.

Some fruit has been picked, but not in large quanities, just spot picking. Prices ranging from $1.50 to $2.00. Fruit has sized considerably in the last three weeks, quite a few splits, size is better than most of the growers expected, of course having the cover crop out, and groves worked makes fruit show up better.

SOUTHWEST FLORIDA
Eaves Allison

This past month has been distinguished chiefly by disaster. Heavy rains over the whole West Coast area have done much damage to fall truck and flower crops. Even where elevation and drainage were good there have been considerable losses, and in the lower areas and less well drained the damage has been heavy. It is a little too early yet—October 18th—to tell just what the full extent may be. But the rain is still falling.

It will be well to remember that much leaching of fertilizer has taken place and this will have to be replaced wherever a crop stand remains. Higher prices should help to offset the crop loss, but it is going to take a lot of doing to make even a part of a crop under the circumstances.

PASCO AND E. HILLSBOROUGH
E. A. McCartney

Rains have been general throughout this section. They were needed in the citrus belt but have caused considerable damage to the vegetable crop. Just how much cannot be determined at this time.

The Fall application is under way on citrus but has been held up recently on account of the wet weather. The trend is more and more to early fall application and this seems to be working out all right, except where Hamlin and Parson Brown oranges are concerned especially when they are just at the point of passing the test. At that point the application is delayed.

Valencia oranges and grapefruit are a little off in volume. No prices have been quoted yet that I have heard of.

ADVERTISEMENT — LYONS FERTILIZER COMPANY

Uncle Bill Says:

By the time next month's message appears on this page the noise and turmoil and the charges and counter charges which has littered up the newspapers and cluttered up the radio will have come and gone . . . one political party will be plum happy over their victory, while the other will be moaning over the fact that the people voted "wrong."

They's a lot of things in our present day mode of livin' and in our political procedures which don't adhere strictly to the words of the Constitution as it was first written by our forefathers . . . but regardless of whether we like these changes or whether we disapprove 'em, this old United States of ours is still the greatest nation they ever was and the opportunities for the individual is so far ahead of any other nation they ain't no comparison.

And like the government they has been a heap of changes over the years in the methods of producin' fruits, vegetables and other farm crops designed fer the eatin' pleasure of the public . . . and so far as the farmin' industry is concerned these changes has generally improved not only the quality, but has greatly increased the quantity of the crops concerned.

One of the big reasons why Florida growers is producin' so effectively is 'cause this group of citizens are forward-lookin' folks, who keep pace with the latest methods and the most advanced cultural procedures.

The ain't nobody can outguess or outsmart the weather man but aside from this one hazard Florida growers, either of their own knowledge or through the help available to 'em from the experiment station or from their fertilizer and insecticide folks, are able to keep fully informed as to the best methods of producin' fruit and vegetable crops that is known all over the world for their fine quality.

The October rains has kept the fall fertilizer application a bit below normal, but it looks as if it might clear up 'fore long and growers will begin to put on this most important application so their trees will be kept healthy and their crops be both big and good.

They's one thought we'd like to remind you of again . . . that Lyons Fertilizers Produce Maximum Crops of Finest Quality.

RAIL REFRIGERATION TEST WITH FLORIDA CITRUS, NOV. 1952

(Continued from page 15)

loading, the average commodity temperature was 42.8°.

There was a wide range in commodity temperature, at times as much as 20 degrees, in this car througnout the transit and holding period. At all times the bottom layer was the coldest part of the load. During tne transit period, except at Kaleigh, the top of the load was but a few degrees warmer than tne middle layer, whereas tne bottom layer was considerably colder. On arrival at Jersey City, tne warmest part of tne load was 49.1°F. and tne coldest 35.4°. During the holding period with vents open, the spread lessened, and at unloading five days later, tne bottom layer averaged approximately 34° and the top layer approximately 41°.

The warmest part of the load had not fallen to 60° when the car arrived at Hamlet, where only the diagonal vents were opened, during the early hours of the second day after loading. After opening the vents, the commodity temperature fell rapidly and the warmest part of the load reached 50° some 10 hours later when the car had reached Richmond.

From the 8,000 pounds of ice supplied at Wildwood, there was approximately 4,800 pounds remaining when the bunkers were inspected at Hamlet, 4,000 pounds at Potomac Yards, 3,100 pounds at destination noon of the fourth day after loading and 2,400 pounds remained five days later when the car was unloaded. During this holding period of approximately normal outside air temperatures, the vents were kept open.

Thus, there was a total ice meltage of 4,900 pounds during the transit period and 700 pounds during the five day holding period.

(Continued Next Month)

STATE OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946, OF THE CITRUS INDUSTRY, PUBLISHED MONTHLY AT BARTOW, FLORIDA, FOR OCTOBER, 1952.

STATE OF FLORIDA,
COUNTY OF POLK.

Before me, a notary public in and for the State and County aforesaid, personally appeared S. L. Frisbie, who having been duly sworn according to law, deposes and says that he is the Editor of The Citrus Industry and that the following is to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication to rthe date show in the above caption, required by the Act of August 24, 1912, as amended by th eAct of March, 1922, embodied in Section 537, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher — Associated Publications Corp., Bartow, Fla.

Editor — S. L. Frisbie, Bartow, Fla.

2. That the owners are:

Associated Publications Corporation, Bartow, Florida.

S. L. Frisbie, Bartow, Fla .
S. Lloyd Frisbie, Bartow, Fla.
Loyal Frisbie, Bartow, Fla.
Richard R. Frisbie, Bartow, Fla.
B. L. Gable, New York, N. Y.
F. L. Skelly, Orlando, Fla.
B. W. Skinner, Dunedin, Fla.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are:

Mosel Preston, Auburndale, Fla.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holders appears upon the books of the company as trustee or in any other fiducary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold than that of a bona fida owner.

S. L. FRISBIE,
Editor

Sworn to and subscribed before me this 30th day of September, 1952.

RHEA L. SUTTON, Notary Public
My commission expires Jan. 21, 1956.

New Sales Agency Formed

A new sales agency known as "Processors Sales Company," has been formed at Groveland for the marketing of citrus products. E. C. Busbee, president of B. & W. Canning Company is president of the new sales agency, with whom is associated several members of the Pasco Packing Company.

President Busbee says the establishment of this sales organization is consistent with the program of the B & W Canning Company to expand both the production and the distribution of its citrus products. Production will be increased to approximately 3 million gallons of frozen concentrated citrus juices and 1½ million cases of canned citrus juices and canned citrus fruits.

The B & W Canning Company and its three grower organizations, The Postal Colony Company, Inc., Clermont, Florida; The Grand Island Citrus Cooperative, Umatilla, Florida; and The Oklawaha River Processing Cooperative, Leesburg, Florida, express their confidence in the continued prosperity of the Florida citrus industry by expanding their program. It is believed that the inauguration of this sales company will assist in developing greater stability within the industry and that it will encourage other processors to place more emphasis on a sound selling program providing greater returns to citrus growers.

Spuds Johnson says it's flue to be Christian, but don't be so heavenly minded that you are no earthly good.

FLORIDA CITRUS MUTUAL FORECASTS PROFITABLE SEASON

(Continued from page 4)

used.

All in all, the prospects for the new season can be described as good, with oranges and grapefruit expected to bring somewhat more on the tree than they did last season.

Just how much more will depend on the cooperation Mutual is able to obtain from the industry in distributing available fruit into the various channels and in preventing any outlet from becoming clogged with supplies.

Classified Ads

FOR SALE — THE BEST QUALITY CITRUS TREES. Several thousand Temple, Citra Pineapple, Pink Seedless and Red Grapefruit trees on Sour Orange root. Contact Frank K. Chase, Telephone 84-501, Auburndale, Florida.

SUPERIOR CITRUS TREES—Now available on Rough Lemon, Sour Orange, Sweet Orange, and Cleo Rootstocks. Prices $1.10 up, depending on the size and number ordered. Also Seedlings for lining out of all varieties. Write for 'Tips to Growers".

WARD'S NURSERY
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CITRUS TREES, in quantity. Valencia, Pineapple, Pink Seedless Grapefruit ,on rough lemon root, for Summer and Fall delivery, ⅝" to ¾". Also trees budded to order.
ORANGE STATE NURSERIES
Zellwood, Florida

Lakeland Engineering Associates, Inc.
DESIGN & CONSTRUCTION SUPERVISION OF INDUSTRIAL PLANTS
LAKELAND FLORIDA

USDA To Study European Citrus Marketing Situation

The U. S. Department of Agriculture will conduct a study of the citrus marketing situation in Western Europe this Fall in the interest of the American citrus industry, and as a part of the Agricultural Marketing Act (RMA, Title II) program to develop foreign outlets for agricultural commodities in plentiful supply.

J. Henry Burke, marketing specialist of the Office of Foreign Agricultural Relations, will examine factors affecting citrus marketing in France, Switzerland, Western Germany, the Netherlands, Belguim, England, Norway, Sweden and Denmark and citrus production in Italy. This study is designed to bring up to date the findings of a similar survey he made for the Department of Agriculture two years ago. In addition to his previous study in Europe the marketing specialist has conducted surveys of the citrus-producing areas of Israel, Lebanon, Cyprus, Algeria, Tunisia, Morocco and Mexico. Reports of these surveys have been published by the Office of Foreign Agricultural Relations.

PREFERS FRESH CITRUS

Reports of studies made by Florida and Texas experiment stations indicated that consumers are more sensitive to changes in quality of citrus products than to changes in prices. These studies also showed a wide preference for fresh fruit over the processed juices.

Revision of Grade Standards For Canned Grapefruit Proposed

The U. S. Department of Agriculture has announced that a revision of the U. S. Standards for grades of canned grapefruit, commonly called grapefruit sections, is contemplated.

The only change proposed from the standards which have been in effect since January, 1943 is in the drained weight requirements for small retail-size containers. For Grade A quality, the drained weight requirement would be reduced to 58% of container capacity in metal containers smaller than No. 2 cans. It is now 60%. The requirement for Grade A in No. 2 cans and larger would remain at 60% drained fruit, as in the present standards. The principal containers affected are the 8 Z Tall and No. 303 cans.

Duval County now has 410 boys enrolled in 4-H club work. W. E. Kloeppel, assistant county agent, began reorganizing clubs several weeks ago, and expects to complete the work soon.

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